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ABSTRACT

A study tested the effects of an approach for improving reading fluency on the general reading and fluency development of second-grade students in regular classrooms. Subjects were from two elementary schools in a large, urban, ethnically diverse school district. There were 30 students in 2 classrooms in a school located in a working class residential setting and 24 students in 2 classrooms in a school located in an inner-city neighborhood. One classroom in each school employed the Fluency Development Lesson (a 10- to 15-minute instructional activity that incorporates several key principles of effective fluency instruction) daily for 6 months. The other classroom in each school was given a control treatment. Pre- and posttesting consisted of subjects being administered a modified informal reading inventory. Results indicated that, aside from improvements in oral reading rate, no other statistically significant treatment effects were observed. However, results also indicated that: (1) all subjects in the study (particularly the experimental subjects) read at a rate above second-grade norms at the posttest; (2) experimental subjects' oral reading rate was higher than normal for some passages; (3) experimental subjects increased their reading rate at a much greater rate than normal; and (4) experimental group teachers reported significant improvements in students' reading performance and attitude. Findings suggest that specific lessons directed at improving reading fluency may be of some value for early elementary grade readers. (Six tables of data are included; 30 references are attached.) (RS)

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The Effects of Fluency Development Instruction on Reading for Urban Second Grade Students*

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Reading fluency has long been considered a critical factor in general reading development and achievement. Yet, surprisingly, it has not been as widely studied as other reading processes and factors such as comprehension, vocabulary, and metacognition. Indeed, Allington (1983) has called fluency the "neglected goal" of reading research and instruction. Similarly, Anderson (1981) believes fluency is the "missing ingredient" in reading instruction. Most popular basal reading programs do not foster reading fluency development in any planned and systematic manner. Few programs identify fluency as a major goal. Despite this neglect, the research on fluency has consistently demonstrated its importance. For example, Rasinski's (1985) statistical model of reading fluency accounted for 77.2% and 96.5% of the variance in comprehension for third- and fifth-grade students respectively.

Research efforts into improving reading fluency and general reading performance through fluency training have enjoyed a minor resurgence in recent years. Much of this research has been directed at individual methods or techniques for improving reading fluency. In repeated readings instruction, for example, students read one brief text several times until fluency is achieved. Samuels (1979) found that the gains made in word recognition, reading rate, and comprehension through repeated readings of one text transferred to passages unfamiliar to the reader. Research by Dowhower (1987), Herman (1985), and Rasinski (1990a) has demonstrated the facilitative effects of repeated readings on readers' performance.

Reading-while-listening, paired reading, and neurological impress reading are variations of another instructional approach for improving fluency. In this method the reader listens to a fluent oral rendition

of a text while reading it himself or herself. The oral rendition may be supplied by a peer, a tutor, a parent, or a previously recorded performance by a fluent reader. In an early study, Heckelman (1969) found that a regimen of impress reading, 15 minutes per day for 29 days, resulted in average gains of 1.9 grade levels in comprehension for 24 students whose reading ability was at least three years below grade placement. Subsequent research has reported similar improvements in children's reading (Laffey & Kelly, 1981; Reitsma, 1988). Carbo (1978) and Chomsky (1976) found that listening to a tape-recorded version of a text had facilitative effects on reading performance. Topping (1987) reported that training parents to read one text orally each day with their children resulted in gains of three to five times what normally would have been expected in word recognition and comprehension.

This corpus of research has, in general, tended to treat fluency training as a supplementary or special method, isolated from the rest of the reading curriculum. Most studies have not addressed the applicability of fluency instruction in the regular reading curriculum where it could have its greatest impact. Instead, most training studies have taken place outside the regular classroom context, with special and often small groups of students for brief durations. All these factors tend to limit the generalizability of fluency instruction methods to broader instructional contexts and populations. Nonetheless, research which has found facilitative effects for fluency training might he used to support the inclusion of a fluency component in the general reading curriculum.

Reading instruction continues to be guided by basal reading

programs, which rarely view instruction in fluency as important. And, because basal approaches are normally viewed as wholly self-contained reading instruction systems, teachers give little consideration to the inclusion of a reading fluency component in the curriculum. Classroom observations confirm that fluency is not an issue dealt with in most classroom reading instruction (Allington, 1984; Gambrell, 1986; Hiebert, 1983). Thus, despite the acknowledgment that reading fluency is a crucial component of literacy development for all children and that experimental instructional efforts in fluency have been singularly positive, few models of fluency instruction for whole classrooms exist. The development of fluency remains a neglected goal in most school reading curricula.

Rasinski (1989) has identified six principles that can guide the development of appropriate fluency instruction in the classroom. These principles include modeling fluent reading for students, direct instruction and feedback in fluency, providing support for the reader while reading (e.g., choral reading and reading-while-listening), repeated readings of one text, cueing phrase boundaries in texts, and providing students with easy materials for reading. Rasinski argues that teachers interested in providing instruction in fluency can design lessons that include one or more of these principles.

Two models of whole class reading fluency instruction have been developed recently which incorporate various principles of fluency instruction. Hoffman and his associates (Hoffman & Crone, 1985; Hoffman, 1987) developed the Oral Recitation Lesson as a way to help less able readers in fluency and general reading. The lesson incorporates repeated oral practice of one text, teacher modeling of fluent reading, and clear standards for pupil mastery. The procedure

begins with the teacher reading a basal story to the group and leading students in an analysis of the story content and development of a story summary. Later, students practice reading sections of the text on their own and with modeling and guidance from the teacher. Finally, students perform portions of the text for their classmates. The teacher evaluates students' word recognition accuracy and reading rate before moving on to another story. Hoffman (1987) reported that, using this procedure, students made progress where no progress had been made previously and that students' focus of attention switched from word identification to comprehension.

A second model, paired repeated reading (Koskinen & Blum, 1986, 1987), employs repeated readings of one text, and formative feedback for every student's reading. Students are divided into pairs, and each child selects his or her own passage of about 50 words to read. After reading the texts silently, each student reads his/her text to the partner three times. The partner responds by telling the reader how his or her reading improved after the second and third readings. After the third reading the roles are reversed and the procedure repeated. Koskinen and Blum (1986) reported that below average third-grade students involved in a paired reading program for 45 minutes per week over five weeks significantly outperformed a control group of below average third-grade students who worked on independent basal reading activities for the same duration on measures of oral reading fluency and semantically inappropriate word recognition miscues.

These two fluency development programs point to the potential of fluency instruction for positively influencing reading development.

The studies, however, dealt with treatments of rather brief duration, did not employ a broad range of fluency principles, and/or did not report results in a quantifiable format.

The present study attempted to extend this line of research on classroom fluency instruction by developing a well-articulated model of fluency instruction that (a) can be readily integrated into the regular reading curriculum, (b) employs an extensive array of principles implemented over the course of a school year, and (c) employs several quantifiable measures of reading performance to evaluate the treatment. We developed a Fluency Development Lesson (FDL), a 10-15 minute instructional activity that incorporates several key principles of effective fluency instruction. To implement the FDL each student is provided with a copy of a 50-150 word text for reading. Although a different text is used each day, teachers are encouraged to cycle back to previously practiced texts as the class develops a corpus of practiced texts. Texts are selected for content, predictability, and rhythm. Rhyming poems and song lyrics for children work well as texts for the FDL. The FDL includes the following steps:

1. Teacher introduces the text and invites predictions.
2. Teacher models fluent reading by orally reading text to the whole class.
3. Teacher leads class in discussion of the text content and the teacher's oral reading of the text. Particular attention is given to the teachers' rate, phrasing, and expression and intonation during reading.

4. Teacher leads whole class in several choral readings of the text.
5. Teacher divides class into pairs and directs each pair to find a reasonably quiet and distraction-free place in the classroom or hallway. Each student reads the text three times to his or her partner, and then roles are reversed. The listening partner's role is to provide positive feedback to and support for the reader. Students are provided with a form that allows them to make positive evaluations and comments about their partners' reading.
6. Teacher calls students back to their places after the paired reading practice and invites individuals, pairs, or small groups to perform the text for the class.
7. Students place the text in a folder and are encouraged to practice reading on their own and to read the text for their parents.

The present study, then, was an attempt to implement the Fluency Development Lesson into the regular reading curriculum of two urban second grades and to test the effectiveness of the FDL in promoting growth in reading fluency among second graders.

Method

Subject and Setting

Subjects for the study came from four second-grade classrooms in

two elementary schools in a large, urban, ethnically diverse school district. School A was located in a working class residential setting while School B was in an inner-city neighborhood. Two classrooms from each school were used. One classroom employed the experimental FDL treatment while the other implemented a control treatment.

Students were assigned randomly into each classroom. Thus, the make-up of each class was representative of its respective school. Reading instruction in school A was self-contained; students received reading instruction from their home classroom teacher. In School B reading instruction groups were developed across all second grade classrooms. After a brief homeroom period, students moved to other classrooms and teachers, depending upon their reading ability, for reading instruction. In both schools reading instruction was basal-directed. All teachers relied the basal program to guide instruction, so the nature of the regular reading program was similar for all children. Thus, time allocated for regular reading instruction and for the reading treatments used in the study was equal for both experimental and control groups in each school. Moreover, in School B, since the treatments were administered during the homeroom period and students later dispersed for reading instruction to one of three second grade teachers, any variations in teacher effectiveness during regular reading instruction were controlled. Thus, total time devoted to reading instruction and nature of the reading instruction were controlled. The main difference in treatment groups was in the type of treatment provided to the students.

Although all students in the four classrooms received the experimental or control treatments, only those students whose parents gave written permission for participation in the study were employed

as subjects. School A had 14 subjects participate in the experimental treatment and 16 in the control. In School B there were 14 experimental subjects and 10 control subjects.

Materials

A reading text was provided by the researchers for each student (experimental and control) for each day of the study. The texts were brief (50-150 words), interesting, and appropriate for second grade students. Thematic relevancy was an important consideration in text selection. We selected texts that matched the time of year as well as topics students were studying in other areas of the curriculum. Special emphasis was given to the predictability and rhythm of each text as it was felt that these characteristics lent themselves to reading for fluency. Rhyming poems, song lyrics, and passages from narratives were used as texts. When a narrative was too long to fit within the 150-word limit for a single day, it was divided into sections that the students read consecutively.

Procedure

All subjects were pretested during October of the school year. Posttesting occurred during the last two weeks of May. Treatments were administered daily from the beginning of November through the middle of May.

Pre and posttesting consisted of subjects being administered a modified informal reading inventory. Subjects orally and silently read passages from the Basic Reading Inventory (Johns, 1988) and answered comprehension questions from the passages. Measures of

instructional reading level and oral reading rate were taken from these readings. Oral reading rate was used as the operational definition and measure of reading fluency.

Treatments were administered during the first 15 minutes of each day while all students were in their heterogeneously grouped home classrooms. The experimental group was administered the FDL by the classroom teacher. The control group worked with the same texts for the same periods of time, but instruction fell within the range of normal reading activities. Control group activities included oral and silent reading, discussion, rewriting and summarizing the text, artistic responses to the content of the text, and finding and discussing interesting words and sentences in the text. Control teachers were asked to minimize multiple readings of the text during the treatment periods.

Experimental treatment teachers were provided training in administering the FDL in two, hour-long training sessions. In addition, one of the researchers modeled presentation of the FDL for each experimental teacher in her own class. All teachers were visited and observed monthly to ensure that the appropriate treatment was being administered and to answer questions and concerns about the study. Both experimental treatment teachers and the third second grade teacher in School B were interviewed at the conclusion of the study about their personal reflections and perceptions of the effectiveness of the experimental treatment.

Results

Students were pre and posttested for instructional reading level using informal reading inventory procedures. From their oral reading

of the graded passages, pre and posttreatment measures of reading rate were also taken. Means and standard deviations for instructional reading levels and reading rates are reported in Tables 1 through 5. In both schools, greater gains in instructional reading level and oral reading rates were made by the experimental treatment group. The only exception to this trend was in improvement in instructional reading level for School A where the control group exhibited a slightly greater improvement.

Effect sizes for all dependent variables were calculated to assess the magnitude of the treatment effects (see Table 6). Effect sizes were determined by subtracting the mean improvement in the control group from the mean improvement in the experimental group and then dividing the difference by the standard deviation of the control group (Glass, McGaw, & Smith, 1981). In all comparisons, save one, treatment effects favored the experimental treatment and ranged from

A three-way analysis of covariance was performed on all dependent measures in order to assess the statistical significance of the gains attributed to the experimental treatment. The within factor in the analysis was time (pretest to posttest), and the between factors were sex and treatment. Days absent from school was entered as a covariate, since children's attendance patterns varied widely. The analysis indicated that all groups made significant improvement over time on each dependent variable. No consistent effect for sex was detected. The only significant treatment by time interaction for the entire sample was for grade two oral reading rate ($F(1,25)=4.33$, $p=.048$). No other significant treatment by time interaction effects were detected for the entire sample or for School

A or B in separate analyses.

Interviews with experimental group teachers and the other second grade teachers were tape-recorded, transcribed, and analyzed. Teachers' perceptions of the effectiveness of the experimental treatment as a way to improve reading fluency and overall reading performance were singularly positive. Specific comments by the teachers as well as unsolicited statements by other school personnel will be presented in the next section.

Discussion

The present study tested the effects of an approach for improving reading fluency on the general reading and fluency development of second grade students in regular classrooms. Aside from improvements in second grade oral reading rate in favor of the experimental treatment, no other statistically significant treatment effects were observed. Nevertheless, a consistent trend favoring the Fluency Development Lesson is clear. All comparisons between the Fluency Development Lesson and the control treatment, except for instructional reading level for School A, favored the FDL. Moreover, the differences due to treatment, as suggested by the calculated effect sizes, were sizable. In addition, the very strongest effects for rate occurred at the first and second grade passage levels, where students were receiving instruction. Thus, the effects were most salient at the point of instruction. While certainly far from conclusive, the results from this study suggest that instructional approaches for developing fluency, such as the FDL, may have considerable potential for improving fluency in second grade students and may deserve a place in the regular reading curriculum. At the

very least, results indicate a need for further research.

Certain factors may have contributed to the lack of statistically significant treatment effects. First, fewer than expected subjects completing the study is one consideration. Over the course of the study several students moved, especially from School B, thereby causing their elimination from the study. Second, although both control teachers were asked not to engage in repeated readings of the treatment texts and to minimize repeated readings in other instructional contexts, both teachers admitted to engaging students in repeated reading activities on occasion. Finally, experimental subjects' rate gains may have been constrained by a ceiling effect. Experimental group students, especially those from School B, may have gained in rate to the limit of their physical capability. They nearly doubled their reading rate at each level of passage difficulty from pre- to posttest; actual gains over the pretest ranged from 81.7% to 93.6% for primer through grade 3 passages. Gains by the control groups were much less impressive, ranging from 34.2% to 49.2%.

How do these rates compare with rate norms for second-grade students? McCracken (1970) has reported that 70 words per minute was the minimal acceptable reading rate for second grade students. All students in the study, and particularly the experimental students, read at a rate considerably above 70 wpm on the posttest, even though school B students' pretest performance was generally below the minimal rate (see Tables 2-5). Rasinski (1990b) correlated third grade students' oral reading rate with their word recognition performance on a grade level passage. Using informal reading inventory procedures for determining instructional reading level, he determined that an

oral rate of 98 wpm corresponded with the instructional reading level. In the present study, experimental second-grade students in School A exceeded this third-grade standard on every posttest passage. School B experimental students did the same on the grades 1 and 2 passages.

Carver (1989) estimated that reading rate increases about 10-20 wpm (standard word length) per year. In the present study, experimental group students improved their reading rate from 42 to 60 wpm over less than one year of instruction. In contrast control group students' rate increase ranged from 26 to 36 wpm. Given the experimental group's extraordinary improvement in rate, these students may have maximized their potential for rate improvement at that time. That is, no further improvement may have been physically possible, given the students' level of reading development.

Moreover, the impact of gains in rate is particularly impressive when rate is recast as the number of words read correctly over a period of time. In the present study, experimental and control groups made similar gains by school in word recognition. Thus, by viewing rate in terms of accurate word recognition per time unit, it becomes clear that students receiving the FDL made considerable gains in their ability to recognize words successfully, i.e., quickly and accurately, the hallmarks of automatized reading.

In addition to the quantitative data reported here, all experimental group teachers noticed significant improvements in students' reading performance and attitude. These improvements were greater than expected when compared to previous years. They attributed the above average improvements to the Fluency Development Lesson. One of the experimental teachers reported the following in a poststudy interview:

> My students are able to read more fluently. They can attack the words better and they are really much more interested in reading than they were before. I found that my less able readers, people who are not normally better readers to begin with, growing more. And, they became more interested in reading, especially if the poems or stories were ones they enjoyed... The students participated better in the lesson. Those that normally won't get in front of a crowd, it's like they don't want to be left out now. Some days our time will be running out, and they'll get upset because they didn't get to perform for the class. That's when I let the lesson go to the next day. I made sure that those who didn't get a chance to read that day will be first the next day. Everybody wants to read and be involved... It works well enough that I will try this again next year.

Besides the positive reports from the teachers, unsolicited evaluative comments were given to one of the researchers by the principal and Chapter 1 reading teacher in School B. Both noticed significant improvements in reading ability as well as a greater willingness and desire to read in those students provided the experimental treatment. Moreover, these evaluations suggest that the FDL may enhance desire to

read and feelings of success as readers, especially among at risk readers.

Overall, the qualitative and quantitative results suggest that specific lessons directed at improving students' fluency in reading may be of some value for early elementary grade readers. The Fluency Development Lesson was easy for teachers to learn, took only a small amount of time (10 - 15 minutes) to implement, and was interesting for students. Students given the FDL made gains in fluency far above expectations and consistently above their peers, who received more traditional reading lessons with the same texts for the same amounts of time. Moreover, the FDL may be particularly helpful for students who are not good readers. In the present study, students from School B, an inner city school, read, on average, at a level below what would be expected for their grade placement. Yet, the students in School B receiving the FDL made the most impressive gains in fluency relative to the control group.

Research suggests that students in elementary grades experiencing difficulty in reading are most likely to exhibit fluency problems (Rasinski, Padak, & Dallinga, 1991). Rasinski et. al. (1991) tested elementary students referred for Chapter 1 corrective reading instruction in a large urban school district. They found the most salient difficulty exhibited by these students was in reading fluency, as measured by oral reading rate. If this is indeed the case, then elementary students experiencing difficulties in reading may find instruction in fluency in general and the FDL in particular to be especially effective strategies for overcoming reading difficulties.

Previous research suggests that poor readers read considerably less than good readers (Allington, 1977; Anderson, Wilson, &

Fielding, 1988; Stanovich 1986). Unfortunately, as less able readers continue to avoid reading or to read less than their more able peers, they tend to fall further behind in their reading development. In addition to the specific instructional strategies such as modeled reading, assisted/choral reading, and repeated readings embedded in the FDL, one reason for its positive effects is the considerable amount of reading engaged in by students participating in the lesson. Although texts are short, the intense rereading in the FDL leads to abundant opportunities for supportive and contextual reading. Conservatively assuming an average text length of 50 words and a minimum of five readings of the text during any Fluency Development Lesson (two choral readings and three independent readings with a partner), each student reads, at least 250 words during each 15-minute lesson. If lessons are provided four times per week, then over the course of a 36-week school year students will read 36,000 words in the FDL alone, not an insignificant number of words, especially given the few minutes it takes to administer the FDL. This, of course, is a conservative estimate as texts often run over 50 words in length and students can, without difficulty, reread the texts many more than five times through silent reading while the teacher reads orally, performing the text, rereading in school after the lesson, and reading at home for parents.

Certainly, further research into reading fluency instruction and the Fluency Development Lesson is called for. Larger sample sizes at a range of grade levels using a variety of testing instruments should provide researchers with a greater understanding of the effects of fluency development instruction on overall growth in reading. In

order for such research to be useful for teachers and reading clinicians, it should be conducted under natural classroom conditions.

This study opens the door for further research into classroom fluency instruction. Fluency instruction is based on acknowledged reading theory and holds promise for improving reading for all students in the "real world" of classrooms. Teachers themselves might consider implementing (and testing) their own versions of fluency instruction. Teachers should be encouraged to design their own lesson formats that fit their own needs and teaching styles and that adhere to recognized principles of effective fluency instruction (Rasinski, 1989). Such action research could go a long way to determine the ultimate and "real world" effectiveness of fluency instruction for all elementary students.

Table 1

Instructional Reading Levels

		Pretest		Posttest	
	N	Mean	SD	Mean	SD
School A					
Experimental	14	3.64	1.86	4.93	.27
Control	16	3.25	1.95	4.56	1.26
School B					
Experimental	14	1.43	1.79	3.57	1.79
Control	11	2.91	2.67	4.55	.52
Total					
Experimental	28	2.54	2.12	4.25	1.43
Control	27	3.11	1.99	4.56	1.01

1 = Preprimer level, 2 = Primer, 3 = First Grade ...

Table 2

Oral Reading Rates on Primer Passage

		Pretest		Posttest	
	N	Mean	SD	Mean	SD
School A					
Experimental	14	76.14	46.13	123.07	43.58
Control	16	59.81	35.13	102.38	32.72
School B					
Experimental	11	40.82	19.75	76.64	27.03
Control	10	53.2	38.57	79.40	29.85
Total					
Experimental	25	60.60	40.44	102.64	43.44
Control	26	57.27	35.87	93.54	33.06

Table 3

Oral Reading Rates on Grade 1 Passage

		Pretest		Posttest	
	N	Mean	SD	Mean	SD
School A					
Experimental	11	93.73	48.70	144.55	41.17
Control	12	76.42	30.91	119.33	28.46
School B					
Experimental	5	55.80	20.56	103.60	36.21
Control	7	68.86	40.56	92.43	35.38
Total					
Experimental	16	81.88	44.99	131.75	43.17
Control	19	73.63	33.86	109.42	33.01

Table 4

Oral Reading Rates on Grade 2 Passages

		Pretest		Posttest	
	N	Mean	SD	Mean	SD
School A					
Experimental	10	99.9	48.63	141.80	37.29
Control	9	88.56	25.20	116.78	25.28
School B					
Experimental	3	58.33	10.79	106.00	29.82
Control	7	64.43	40.24	89.14	34.15
Total					
Experimental	13	90.31	46.11	133.54	37.92
Control	16	78.00	33.75	104.69	31.75

Table 5

Oral Reading Rates on Grade 3 Passage

		Pretest		Posttest	
	N	Mean	SD	Mean	SD
School A					
Experimental	10	77.60	40.37	120.30	30.96
Control	7	69.29	30.50	107.43	32.16
School B					
Experimental	3	42.00	8.72	81.33	36.02
Control	4	65.50	30.73	92.00	29.52
Total					
Experimental	13	69.38	38.45	111.31	35.83
Control	11	67.91	29.07	101.82	29.95

Table 6

Effect Sizes

	Instructional Level	Oral Rate-P	Oral Rate-1	Oral Rate-2	Oral Rate-3
School A	-.016	.133	.278	.541	.142
School B	.962	.322	.684	.672	.435
Total	.257	.174	.427	.521	.268

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